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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,010	02/13/2002	Ernest Eun Ho Shin	11188/3	7134

7590

06/13/2003

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EXAMINER
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MULLINS, BURTON S

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 06/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

10/075,010

## Applicant(s)

SHIN, ERNEST EUN HO

## Examiner

Burton S. Mullins

## Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 15-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-14 is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 18-23 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-14 and 18-23) in the response filed 9 May 2003 is acknowledged. The traversal is on the ground(s) that the three species could be adequately searched in conjunction with the present application. This is not found persuasive because the species have different classifications and subject matter. Claims 15-17 are withdrawn from prosecution.

The requirement is still deemed proper and is therefore made FINAL.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 31 May 2002 has been considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

3. Claims 9 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Recitation "inducing electric power through the movement of said magnet capsule proximate said coil module in proximity to a non-filled portion of pipe" is vague and indefinite. Is the "pipe" the same thing as the "tube"? What is the "non-filled portion" of the pipe? A region of the tube not containing any fluid? Does this mean that the

electric generator is located at the region of the tube/pipe with no fluid? Or that the capsules pass through such a region during their travel through the tube/pipe?

In claim 21, "said lower portion of said fluid" lacks antecedent basis. Does this refer to the lower portion of the tubular member, or the fluid-filled area?

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4-8 and 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Fawcett et al. (US 3,859,789). Fawcett teaches a buoyancy-driven power generation system (Fig.2) comprising: a plurality of magnet capsules 56, a containment loop (housing 54), said loop comprising a buoyancy section (right side of loop/housing 54) and a gravitational section (left side of loop/housing 54), said buoyancy section comprising a lower elevation portion and an upper elevation portion (part of right side of loop/housing 54; Fig.2), said gravitational section comprising a capsule holding section (region of loop/housing 54 between latch 66 and pressure input conduit 60; Fig.2) and a slide-and-fall section (region of loop/housing between air inlet 64 and latch 66; Fig.2), a capsule injector (including pressure input conduit 60) operative to receive a magnet capsule from said slide-and-fall section (e.g., by means of latch 66) and introduce said magnet capsule into said buoyancy section (expanding gas from pressure input conduit 60 drives capsules 56 into buoyancy section), and a linear generator coil 80

configured to allow passage of said magnet capsules therethrough (Fig.2); whereby movement of said magnet capsule through said coil generates electric power (c.1, lines 53-57).

Regarding claim 4, Fawcett also teaches a method of generating electric power, said method comprising: introducing a magnet capsule 56 into a first portion of a containment loop (right hand side of housing 54; Fig.2); allowing said magnet capsule to move within said first portion due to buoyancy force (compressed air or expanding gas introduced at inlet 60 drives magnet capsules 56), and inducing electric power through the movement of said magnet capsule through said first portion (c.1, lines 53-57).

Regarding claim 5, air is a fluid.

Regarding claim 6, Fawcett's capsule injector includes a pressure input conduit 60 operative to receive a magnet capsule from said slide-and-fall section by means of latch 66.

Regarding claim 7, the capsules 56 are moved through at least a second portion of said loop (that part between air inlet 64 and latch 66; Fig.2) via gravity (see Fig.2).

Regarding claim 8, this is inherent in Fawcett since the balls collect in the injector section, as they pass beyond the latch 66 (Fig.2).

Regarding claim 18, Fawcett teaches a method of generating electric power comprising: providing at least one buoyant magnetic capsule 56 and at least one coil 80, introducing said capsule into a lower portion of a fluid-filled area (lower left hand side of housing/loop 54; Fig.2), allowing said magnetic capsule to rise through said fluid (pressurized air is the fluid), and directing said capsule 56 proximate said coil 80 to induce current flow in said coil (c.1, lines 53-57).

Regarding claim 19, the capsules return to a lower portion via gravity as they pass from the region beyond air inlet 64 to latch 66.

Regarding claim 20, the right-hand region of housing/loop 54 forms a first "flowpath" for the capsule 56 through the fluid and proximate the coil 80.

Regarding claim 21, the tubular member or housing/loop 54 is "at least partially filled with a fluid" (air).

Regarding claim 22, the left hand side of housing/loop 54 forms a second flowpath.

Regarding claim 23, the housing 54 forms a loop.

***Allowable Subject Matter***

6. Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Fawcett does not teach or suggest a capsule injector comprising first and second gates (claim 2). Neither does Fawcett teach or suggest a capsule injector comprising a first chamber, a first ball valve, a second chamber, and a second ball valve (claim 3). The prior art does not remedy these deficiencies.

7. Claim 9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. As best understood, Fawcett teaches the limitations of claim 9, including a method of generating electrical power by providing an elongated tube 54, at least one portion of said tube containing fluid (air is the fluid); providing at least one coil module 80 proximate at least one portion of said tube (Fig.2); introducing a magnet capsule 56 to said fluid filled portion (right hand side of loop/housing

54), allowing said magnet capsule 56 to move through said fluid filled portion due to buoyancy force (compressed air or expanding gas introduced at inlet 60 drives magnet capsules 56).

However, Fawcett does not teach that the linear generator is located at a region without fluid, such that electric power is induced when the magnet capsule moves proximate the generator coil module while traveling through a portion of pipe that is not filled with fluid. In Fawcett, the fluid (air) is present throughout the entire housing/loop 54.

8. Claims 10-14 are allowed. Fawcett does not teach an apparatus for generating electric power using buoyancy including, inter alia, a containment loop comprising a liquid filled portion of said loop at a lower elevation portion, with coil modules surrounding the liquid filled portion. Fawcett teaches air as the fluid, not a liquid, per se. Neither does the loop/housing 54 in Fawcett have a liquid filled portion at a lower elevation and a higher elevation, specifically.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or

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proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

  
Burton S. Mullins  
Primary Examiner  
Art Unit 2834

bsm  
June 7, 2003